United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

May 3, 2019

Andrew D. Kelly, Colonel
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Consultation Code:	04EF2000-2019-F-0190
Corps Application Number:	SAJ-1997-02361 (NWP-RHF)
Date Received:	January 28, 2019
Formal Consultation Initiation Date:	February 14, 2019
Project:	Intake Pipe Installation
Applicant:	City of Boca Raton
County:	Palm Beach

Dear Colonel Kelly:

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion to the U.S. Army Corps of Engineers (Corps) based on our review of the Gumbo Limbo Nature Center seawater intake pipe replacement project located perpendicular to the shoreline along Boca Raton in Palm Beach County, Florida (Project). The Corps determined that the Project may affect, and is likely to adversely affect the threatened North Atlantic Distinct Population Segment (DPS) of the green sea turtle (*Chelonia mydas*), the endangered hawksbill sea turtle (*Eretmochelys imbricata*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), the endangered leatherback sea turtle (*Dermochelys coriacea*), and the threatened Northwest Atlantic Ocean (NWAO) DPS of the loggerhead sea turtle (*Caretta caretta*); and may affect, but is not likely to adversely affect the threatened piping plover (*Charadrius melodus*), the threatened red knot (*Calidris canutus rufa*), terrestrial loggerhead sea turtle designated critical habitat, and threatened West Indian manatee (*Trichechus manatus*; manatee). For the purposes of this document, the five identified sea turtles will be referred to collectively as sea turtles. This document is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C. 1531 *et seq.*).

The Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) share Federal jurisdiction for sea turtles under the Act. The Service has responsibility for sea turtles on the nesting beach and the NOAA Fisheries has jurisdiction for sea turtles in the marine environment. Our analysis in this document will only address activities that may impact nesting sea turtles, their nests and eggs, and hatchlings as they emerge from the nest and crawl to the sea. Please note the provisions of this consultation do not apply to sea turtles in the marine environment, such as swimming juvenile and adult sea turtles or loggerhead critical habitat in the marine environment. If applicable, you are required to consult with the NOAA Fisheries on this Project. For further information on Act compliance

with the NOAA Fisheries, please contact Karla Reece, Acting Chief of the Interagency Cooperation Branch, by e-mail at karla.reece@noaa.gov or by phone at 727-824-5348.

This Biological Opinion is based on information provided in the Corps' January 10, 2019, letter; December 2018 Biological Assessment; and supplemental documents from Applied Technology and Management (Consultant). A complete administrative record of this consultation is on file at the South Florida Ecological Services Office, Vero Beach, Florida.

Consultation History

On August 24, 2018, the Service received a copy of construction figures from the Consultant.

On September 13, 2018, the Service received a copy of the lighting plan from the Consultant.

On January 28, 2019, the Service received a letter from the Corps dated January 10, 2019, requesting formal consultation concerning the proposed Project in Palm Beach County, Florida.

On February 14, 2019, the Service completed their review of the proposed Project and initiated formal consultation with the Corps concerning the potential effects of the proposed Project on sea turtles, along with informal consultation on designated terrestrial loggerhead sea turtle critical habitat, piping plovers, red knots, eastern indigo snakes (*Drymarchon corais couperi*), and manatees.

On April 17, 2019, the Service sent an email to the Corps requesting they change their affect, but is not likely to adversely affect determination for the threatened eastern indigo snake to no affect based on new office guidelines.

On April 29, 2019, the Service received an email from the Corps changing their may affect, but is not likely to adversely affect determination for the threatened eastern indigo snake to no affect.

BIOLOGICAL OPINION

This Biological Opinion provides the Service's opinion as to whether the proposed Project is likely to jeopardize the continued existence of sea turtles or result in the destruction or adverse modification of designated critical habitat (50 CFR § 402.02).

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be

expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this Biological Opinion relies on four components: 1) the Status of the Species, which describes the range-wide condition of the species, the factors responsible for that condition, and its survival and recovery needs; 2) the Environmental Baseline, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; 3) the Effects of the Action, which determine the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and 4) the Cumulative Effects, which evaluate the effects of future, non-federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed federal action in the context of the current status of the species, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

Adverse modification determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat of listed species.

Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features. The destruction or adverse modification definition focuses on how Federal actions affect the quantity and quality of the physical or biological features in the designated critical habitat for a listed species and, especially in the case of unoccupied habitat, on any impacts to the critical habitat itself. The Service will generally conclude that a Federal action is likely to "destroy or adversely modify" designated critical habitat if the action results in an alteration of the quantity or quality of the essential physical or biological features of designated critical habitat, or that precludes or significantly delays the capacity of that habitat to develop those features over time, and if the effect of the alteration is to appreciably diminish the value of critical habitat for the conservation of the species. The Service may also consider other kinds of impacts to designated critical habitat as appropriate.

DESCRIPTION OF PROPOSED ACTION

The City of Boca Raton (Applicant) proposes to construct the Project (Figure 1) which includes the following:

1. Horizontal directional drilling (HDD) will be conducted from the nature center's employee parking lot (west of State Road AlA adjacent to the nature center) to a point approximately 400 to 700 feet (ft) seaward of the shoreline to an ocean depth of about 20 ft. The seaward-most point is more than 1,000 ft from any marine resources and located in an area of sandy substrate.
2. Two, 1.5-ft high-density polyethylene (HDPE) pipes will be installed through the HDD borings.
3 Eastward of the proposed pump house, the HDD will have a slope greater than – 12 ft North American Vertical Datum 88 and will enter consolidated rock/coquina, which is the preferred drilling substrate. It is anticipated that the HDD boring corridor will be greater than 30 ft below the dry, sandy beach prior to exiting into the ocean approximately 400 to 700 ft seaward of the shoreline at a depth of approximately 20 ft.
4. Total drilling time for both 1.5 ft HDPE pipes is estimated at 10 to 15 days. There will be some downtime for installing the first pipe prior to HDD drilling commences for the second pipe.
5. Installation of both HDD 1.5-ft pipes will require a 24-hour construction operation. All lighting on the vessel located approximately 500 ft from shore, will comply with best management practices, including minimizing and shielding lights, and directing the lights on offshore vessels seaward. Lighting at the entry point will be minimized and pointed westward.
6. Installation of the pumps, pump house, intake filters, etc., will not require a 24-hour construction operation and will be performed only during daylight hours.
7. Both pipes will be spaced 30 to 45 ft apart from one another.
8. No work or staging of equipment will be located on the dry beach or primary dune. All drilling and installation activities will be conducted west of the primary dune and from a vessel located in the nearshore waters.

No upland habitat impacts associated with the Project are anticipated; however, if impacts are incurred, all impacted areas and vegetation will be restored to preconstruction condition and elevation. Project construction is scheduled to take place during the summer of 2019.

Minimization and conservation measures

To minimize impacts to manatees from the proposed Project, the Applicant has agreed to follow and implement the Florida Fish and Wildlife Conservation Commission's (FWC) *Standard Manatee Conditions for In-Water Work* (FWC 2011). In order to monitor any potential impacts to nesting and hatchling sea turtles, the Applicant will conduct both day and nighttime surveys, and provide a report to the Service as outlined in the *Statewide Programmatic Biological Opinion* (Service 2015).

Action Area

The action area for the Project is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The Service identifies the action area to include the HDD boring and HDPE pipeline corridors which are located in

unvegetated sandy nearshore waters, beach, and dune areas; and staging areas. The Project is located along the Atlantic coast, Palm Beach County, Florida, starting at latitude 26.367247 and longitude -80.068803, and ending at latitude 26.367247 and longitude -80.066792.

SPECIES NOT LIKELY TO BE ADVERSELY AFFECTED BY THE PROPOSED ACTION

Piping plover

The proposed Project is located within the piping plover consultation area, but is not located in piping plover critical habitat. Wintering piping plovers prefer coastal habitats that include sand spits, islets, tidal flats, shoals, and sandbars that are often associated with inlets. Additionally, sandy mud flats, ephemeral pools, and overwash areas are considered primary foraging habitats. The action area contains in part some of the above referenced habitat types. According to our GIS database, one piping plover was documented approximately 0.5 mi south of the action area in 2006. In addition, according to eBird (2019), a total of three piping plovers were documented approximately 0.60 mile (mi) north of the action area in 2011 and 2012; and one piping plover approximately 0.80 mi to the north of the action area. The HDD portion of the proposed Project will occur under the beach and dune areas, and there will be no equipment staging or work conducted on these areas. The HDD may result in noise and/or vibrations that may affect piping plovers; however, the HDD corridor will be located more than 16 ft below the beach and dune, and will occur beneath the water table which will assist in dampening the noise and vibrations. At most, the construction may temporarily flush piping plovers a short distance to the north or south. Consequently, the Corps has determined that the proposed Project may affect, but is not likely to adversely affect the piping plover, and the Service concurs with this determination.

Red knot

Red knots may use the proposed action area during winter and migration periods. In Florida, red knots are commonly found along sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments, mangrove and brackish lagoons. Red knots forage along sandy beaches during spring and fall migration throughout Florida. To date, critical habitat has not been proposed or designated for the red knot. According to our GIS database and eBird (2019), no red knots have been documented in the action area. The HDD portion of the proposed Project will occur under the beach and dune areas, and there will be no equipment staging or work conducted on these areas. The HDD may result in noise and/or vibrations that may affect red knots; however, the HDD corridor will be located more than 16 ft below the beach and dune, and will occur beneath the water table which will assist in dampening the noise and vibrations. At most, the construction may temporarily flush red knots a short distance to the north or south. Consequently, the Corps has determined that the proposed Project may affect, but is not likely to adversely affect the red knot, and the Service concurs with this determination.

Terrestrial loggerhead sea turtle critical habitat

The Project will occur along a stretch of beach that is designated as terrestrial loggerhead sea turtle critical habitat. The proposed Project is not expected to directly or indirectly impact biological and physical features of critical habitat for the NWAO DPS of the loggerhead sea

turtle along approximately 45 ft of beach along Palm Beach County. The 45 ft of beach along Palm Beach County represents 0.06 percent of Critical Habitat Unit LOGG-T-FL-13, and 0.001 percent of all designated critical habitat in the NWAO DPS. Due to the nature of the proposed Project and the Applicant's lighting plan that minimizes the use of light to the maximum extent possible and requires all water based lighting to be shielded and directly offshore, the Service concurs with the Corps' determination that the Project may affect, but is not likely to adversely affect terrestrial loggerhead sea turtle designated Critical Habitat Unit LOGG-T-FL-13.

West Indian manatee

The Project is located within the geographic range of the manatee and in the manatee consultation area, but not in an important manatee area. The Corps determined the Project may affect, but is not likely to adversely affect the manatee utilizing *State of Florida Effect Determination Key for the Manatee in Florida* (Service 2013), based on the following sequential determination: A->B->C->G->N->O->P. This determination is based on the Applicant's agreement to implement the FWC's *Standard Manatee Conditions for In-Water Work* (FWC 2011) to avoid potential effects to manatees. Based on the proposed protection measures, the Service concurs with the Corps' determination.

STATUS OF THE SPECIES/CRITICAL HABITAT

Sea turtles

Please see the *Statewide Programmatic Biological Opinion* (Service 2015) for the current Status of the Species for sea turtles and terrestrial loggerhead sea turtle designated critical habitat.

Summary of threats to the species/critical habitat

Anthropogenic factors that impact hatchlings and adult female turtles on land, or the success of nesting and hatching include: beach erosion; armoring and nourishment; artificial lighting; sound stimuli; beach cleaning; increased human presence; recreational beach equipment; beach driving; coastal construction and fishing piers; exotic dune and beach vegetation; and poaching. An increased human presence at some nesting beaches or close to nesting beaches has led to secondary threats such as the introduction of exotic fire ants (*Solenopsis* spp.), feral hogs (*Sus scrofa*), dogs (*Canis familiaris),* and an increased presence of native species (e.g., raccoons (*Procyon lotor*), armadillos (*Dasypus novemcinctus*), and opossums (*Didelphis virginiana*), which raid nests and feed on turtle eggs. Although sea turtle nesting beaches are protected along large expanses of the western North Atlantic coast, other areas along these coasts have limited or no protection. Of the above listed threats to sea turtles, the effects of artificial lighting and sound stimuli are relevant to the proposed Project.

Artificial lighting

Visual cues are the primary sea-finding mechanism for hatchling sea turtles (Mrosovsky and Carr 1967, Mrosovsky and Shettleworth 1968, Dickerson and Nelson 1989, Witherington and

Bjorndal 1991). When artificial lighting is present on or near the beach, it can misdirect hatchlings once they emerge from their nests and prevent them from reaching the ocean (Philibosian 1976, Mann 1977, FWC 2007). In addition, a significant reduction in sea turtle nesting activity has been documented on beaches illuminated with artificial lights (Witherington 1992). Therefore, construction lights along a project beach and/or on a dredging vessel may deter females from coming ashore to nest, misdirect females trying to return to the surf after a nesting event, and misdirect emergent hatchlings from adjacent non-project beaches.

Sound stimuli

Very little literature exists concerning the effects of sound on sea turtles. Although there is a growing collection of literature surrounding the effects of anthropogenic sources of sound (seismic activities, shipping, explosives, construction, and low frequency sonar), it's primarily focused on marine mammals and not fishes, invertebrates, and sea turtles (DFO 2004). Of the very limited literature that exists concerning the effects of sound on sea turtles, it deals with seismic sound on swimming sea turtles (DFO 2004, Weir 2007) and not nesting sea turtles. In controlled exposure studies using captive sea turtles in water, Weir (2007) documented an increase in swimming speed and erratic behavior indicative of avoidance when exposed to seismic airgun sound levels of 166 to 176 dB. Other auditory studies of sea turtles have concluded the following: 1) sea turtles, specifically loggerhead and green sea turtles, are able to hear and respond to low frequency sound; 2) behavioral response of sea turtles in enclosures exposed to seismic airgun sounds consisted of increased swimming speed and activity, change in swimming direction, and avoidance; 3) sea turtles may become accustomed to seismic sound **over time; 4) sea turtles may lose hearing sensitivity due to exposure to seismic sound; 5) the response of free-ranging sea turtles to seismic sound is unknown; and 6) it's unlikely that sea** turtles are more sensitive to seismic operations than cetaceans or some fishes (DFO 2004).

Although sound conduction in sea turtles is optimized in water, sea turtles show behavioral and physiological responses to sounds delivered in both air and water (Southwood et al. 2008). When green sea turtles were exposed to sounds via a loudspeaker in air, they displayed a response to sound levels between 100 and 800 Hz, with the greatest degree of sensitivity between 600 and 700 Hz, and 200 and 400 Hz for juvenile and sub-adults, respectively (Southwood et al. 2008). In addition, there is some anecdotal data that demonstrates that construction related sounds/vibration can potentially decrease nesting activity. During the 1992 sea turtle nesting season, reconstruction of the English Bay Power Station on Ascension Island in part involved drilling bore holes during daylight hours and the use of heavy equipment, all of which created a great deal of noise. Given the absence of other apparent changes in the physical landscape adjacent to English Bay and strong vibrations associated with construction activities, Mortimer (1995) concluded that the decrease in nesting activity in 1992 was partly attributed to vibrations.

Due to the lack of available data on the effects of different forms of sound stimuli on sea turtles, more research is necessary to determine the sound characteristics and environmental conditions under which sound effects behavior, physiology, and physical wellbeing in both the terrestrial and marine environment. In addition, the development of mitigation measures and their effectiveness due to potential impacts of sound needs to be more fully explored.

ENVIRONMENTAL BASELINE

Status of the species/critical habitat within the action area

Sea turtles

The proposed Project is located within the Peninsular Florida Recovery Unit (PFRU). The PFRU averages 95,769 nests per year (based on 2014 to 2018 nesting data; FWRI 2019). Of the available nesting habitat within the PFRU, the Project will occur on approximately 0.13-ac of available nesting beach.

Green sea turtle

Of the counties along the east coast of Florida, Palm Beach County supported the second highest nesting of green sea turtles with 1,277 nests (28 nests per mi) in 2018 (FWC 2019). In 2018, green sea turtles made 1,445 false crawls in Palm Beach County. Along the shoreline in Zone D (0.53 mi) which the Project area lies within, green sea turtles laid 12 nests and made 8 false crawls in 2018.

Hawksbill sea turtle

Since 2008, only one hawksbill sea turtle nest has been documented within the City of Boca Raton near Florida Department of Environmental Protection reference monument R-207, which is approximately 5,000 ft north of the Project area. The majority of nesting surveys conducted in Florida occur during the morning hours and are based on interpretation of the tracks left by the turtles as they ascend and descend the beach; the turtles themselves are rarely observed. Because hawksbill and Kemp's ridley sea turtle tracks are difficult to discern from loggerhead sea turtle tracks, it is likely that nesting by both species is underreported (Meylan et al. 1995).

Kemp's ridley sea turtle

Kemp's ridley sea turtle nesting has not been documented in Palm Beach County in the past 23 years; however, false crawls have been recorded outside of the Project area. The majority of nesting surveys conducted in Florida occur during the morning hours and are based on interpretation of the tracks left by the turtles as they ascend and descend the beach; the turtles themselves are rarely observed. Because hawksbill and Kemp's ridley sea turtle tracks are difficult to discern from loggerhead sea turtle tracks, it is likely that nesting by both species is underreported (Meylan et al. 1995).

Leatherback sea turtle

Of the counties along the east coast of Florida, Palm Beach County supported the second highest nesting of leatherback sea turtles with 305 nests (seven nests per mi) in 2018 (FWC 2019). In 2018, leatherback sea turtles made 47 false crawls in Palm Beach County. Along the shoreline in Zone D (0.53 mi) which the Project area lies within, leatherback sea turtles laid two nests and zero false crawls were documented in 2018.

Loggerhead sea turtle

Of the counties along the east coast of Florida, Palm Beach County supported the highest nesting of loggerhead sea turtles, with 24,876 nests (548 nests per mi) in 2018 (FWC 2019). In 2018, loggerhead sea turtles made 36,944 false crawls in Palm Beach County. Along the shoreline in Zone D (0.53 mi) which the Project area lies within, loggerhead sea turtles laid 126 nests and made 171 false crawls in 2018.

Climate Change

Our analyses under the Act include consideration of observed or likely environmental effects related to ongoing and projected changes in climate. As defined by the Intergovernmental Panel on Climate Change (IPCC), "climate" refers to average weather, typically measured in terms of the mean and variability of temperature, precipitation, or other relevant properties over time; thus, "climate change" refers to a change in such a measure which persists for an extended period, typically decades or longer, due to natural conditions (*e.g.,* solar cycles) or human-caused changes in the composition of the atmosphere or in land use (IPCC 2013, p. 1450). Detailed explanations of global climate change and examples of various observed and projected changes and associated effects and risks at the global level are provided in reports issued by the IPCC (2014 and citations therein). Information for the United States (U.S.) at national and regional levels is summarized in the National Climate Assessment (Melillo et al. 2014 entire and citations therein; see Melillo et al. 2014, pp.28-45 for an overview). Because observed and projected changes in climate at regional and local levels vary from global average conditions, rather than using global scale projections, we use "downscaled" projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species and the conditions influencing it. (See Melillo et al. 2014, Appendix 3, pp. 760-763 for a discussion of climate modeling, including downscaling). In our analysis, we use our expert judgment to weigh the best scientific and commercial data available in our consideration of relevant aspects of climate change and related effects.

Climatic changes in Florida could amplify current land management challenges involving habitat fragmentation, urbanization, invasive species, disease, parasites, and water management. Global warming will be a particular challenge for endangered, threatened, and other "at risk" species. It is difficult to estimate, with any degree of precision, which species will be affected by climate change or exactly how they will be affected. The Service will use Strategic Habitat Conservation planning, an adaptive science-driven process that begins with explicit trust resource population objectives, as the framework for adjusting our management strategies in response to climate change (Service 2006). As the level of information increases relative to the effects of global climate change on sea turtles and its designated critical habitat, the Service will have a better basis to address the nature and magnitude of this potential threat and will more effectively evaluate these effects to the range-wide status of sea turtles.

EFFECTS OF THE ACTION

Adverse effects

Sea turtles

Horizontal directional drilling and pipe installation activities

Project construction will occur within and adjacent to nesting habitat for sea turtles and dune habitats that ensure the stability and integrity of the nesting beach. Due to the nature of the proposed action, it has the potential to adversely affect nesting sea turtles and their nests, and hatchlings that would occur along the Project area due to artificial lighting and sound stimuli. The proposed Project may change the nesting behavior of adult female sea turtles, diminish nesting success, and cause reduced hatching and emerging success resulting from the construction activities conducted at night and daylight hours, and during the sea turtle nesting season (between March 1 and November 30). Any decrease in productivity and/or survival rates would contribute to the vulnerability of sea turtles nesting in the southeastern U.S. The construction of the intake pipes is to be a one-time activity and may take between 10 and 15 days during sea turtle nesting and hatching season to complete. Thus, the direct effects would be expected to be short-term in duration.

Interrelated and interdependent actions

An interrelated activity is an activity that is part of the proposed action and depends on the proposed action for its justification. An interdependent activity is an activity that does not have independent utility apart from the action under consultation. Interrelated or interdependent actions are not expected to result from the proposed Project.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The Service is not aware of any cumulative effects in the action area.

CONCLUSION

After reviewing the current status of the five sea turtle species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Project as proposed, is not likely to jeopardize the continued existence of any of the sea turtle species, and is not likely to destroy or adversely modify designated terrestrial loggerhead sea turtle designated Critical Habitat Unit LOGG-T-FL-13. We have reached this conclusion because: 1) any impacts associated with the HDD activities and pipe installation will be minimized if not avoided due to the depth (approximately 20 ft) at which these activities will take place. In addition, the presence of the water table at this depth may

assist in dampening any vibrations from these activities, 2) the nearshore vessel will use the minimal amount of light required for safe operations and to be compliant with rules and regulations. In addition, any light fixture on the vessel will be shielded and directed offshore during sea turtle nesting season, and 3) any affects associated with the proposed action would be limited to a maximum of 15 days.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of the agency action, is not considered to be prohibited taking under the Act provided such taking is in compliance with the terms and conditions of this incidental take statement.

The terms and conditions described below are nondiscretionary and must be undertaken by the Corps so they become binding conditions of any grant or permit issued to the Applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps 1) fails to assume and implement the terms and conditions; or 2) fails to require the Applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Applicant must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement [50 CFR § 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIIPATED

The Service has reviewed the biological information for sea turtles, information provided by the Consultant, and other available information relevant to this action. The proposed Project is expected to incidentally result in take of sea turtles in the form of harm due to:

1) Misdirection of nesting sea turtles or hatchling turtles on beaches within the boundaries of the proposed Project, or beaches adjacent to the Project action area as they emerge from the nest and crawl to the water as a result of project lighting and/or the effects of sound stimuli from construction activities; and 2) behavior modification of nesting females due to project lighting and/or the effects of sound stimuli from construction activities, resulting in false crawls or situations where they choose marginal or unsuitable nesting areas to deposit eggs.

Incidental take is anticipated for only the 0.13-ac of beach that has been identified for the proposed Project. The Service anticipates incidental take of sea turtles will be difficult to detect for the following reasons: 1) turtles nest primarily at night and all nests are not found because [a] natural factors, such as rainfall, wind, and tides may obscure crawls; and [b] human-caused factors, such as pedestrian and vehicular traffic, may obscure crawls, and result in nests being destroyed because they were missed during a nesting survey and nest mark and avoidance program; 2) the total number of hatchlings per undiscovered nest is unknown; 3) an unknown number of females may avoid the project beach and be forced to nest in a less than optimal area; and 4) lights may misdirect an unknown number of hatchlings and cause death. However, the level of take of sea turtles can be anticipated by the construction activities on suitable turtle nesting beach habitat because: 1) turtles nest within the Project site; 2) construction will likely occur during a portion of the nesting season; and 3) artificial lighting will deter and/or misdirect nesting and hatchling sea turtles.

The Service finds that no more than 0.13 ac of sea turtle nesting habitat will be incidentally taken as a result of the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided.

EFFECT OF THE TAKE

In the accompanying Biological Opinion, the Service determined this level of anticipated take is not likely to result in jeopardy to sea turtles, or result in destruction or adverse modification of terrestrial loggerhead sea turtle designated critical habitat unit LOGG-T-FL-13.

REASONABLE AND PRUDENT MEASURES

When providing an incidental take statement, the Service is required to provide: 1) reasonable and prudent measures it considers necessary or appropriate to minimize the take; 2) terms and conditions that must be complied with to implement the reasonable and prudent measures; and 3) procedures to be used to handle or dispose of any individuals taken. The Service finds the Applicant has already designed the Project to minimize take resulting from the action as described in the *Description of the Proposed Action* and *Minimization and Conservation Measures* sections of this Biological Opinion.

Therefore, additional reasonable and prudent measures and their implementing terms and conditions are not necessary to reduce take of sea turtles resulting from the action and will not be provided.

MONITORING AND REPORTING REQUIREMENTS

Pursuant to 50 CFR § 402.14(i)(3), the Corps must provide adequate monitoring and reporting to determine if the amount or extent of take is approached or exceeded. Following HDD drilling and intake pipe installation activities associated with the Project, the Applicant must provide a report to the Service concerning the results of the sea turtle surveys.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Upon locating a dead, injured, or sick threatened or endangered species, initial notification must be made to the nearest Service Law Enforcement Office: 20501 Independence Blvd., Groveland, Florida 34736; 352-429-1037, as well as the FWC's Wildlife Alert number; 888-404-3922. Secondary notification should be made to the biologist identified below at the South Florida Ecological Service Office, 772-562-3909. Care should be taken in handling sick or injured specimens to ensure effective treatment and in the handling of dead specimens to preserve biological material in the best possible state for later analysis as to the cause of death. In conjunction with the care of sick or injured specimens, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following:

1. Educational signs should be placed where appropriate at beach access points explaining the importance of the area to sea turtles and/or the life history of sea turtle species that nest in the area.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the conservation recommendations carried out.

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in the Project consultation request. As written in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Corps involvement or control over the action has been retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded (0.13 ac of sea turtle nesting habitat); 2) new information reveals effects of the Corps action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the Corps action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Thank you for your cooperation and effort in protecting federally listed species and fish and wildlife resources. If you have any questions regarding this project, please contact Jeff Howe at 772-469-4283.

Sincerely yours,

Roxanna Hinzman
Field Supervisor
South Florida Ecological Services Office

cc: electronic only
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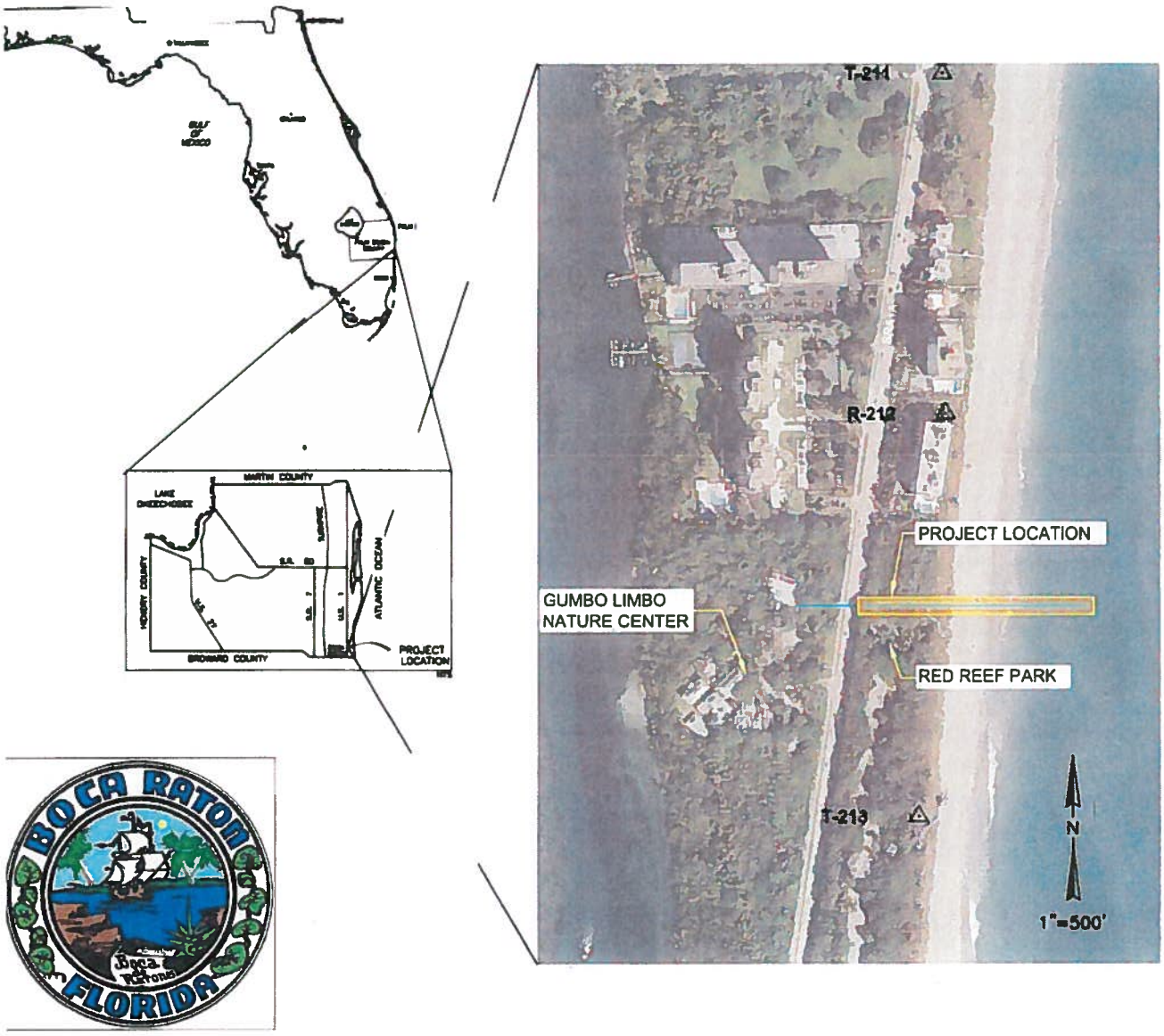

Figure 1. Location of the proposed Gumbo Limbo Nature Center intake pipe replacement project along Boca Raton beach, Palm Beach County, Florida.